

CLAIMES

1. An electrostatic chuck, comprising:
a metal base plate;
a disc-shaped ceramic layer having a predetermined thickness adhesively bonded to said metal base plate;
a planner electrode positioned in said ceramic layer in the middle thereof in its thickness direction; and
a cooling gas channel is formed on a surface of said ceramic layer over said electrode and within an outer peripheral edge of said electrode.
2. The electrostatic chuck according to claim 1, wherein said planner electrode extends beyond said cooling gas channel.
3. An electrostatic chuck according to claim 1, wherein said cooling gas channel comprises a ring shape along an outer peripheral edge of said ceramic layer, said chuck further comprising gas feed orifices located in a plurality of positions at a bottom portion of said gas cooling channel and gas feed orifices located in a plurality of positions on a circumference on a surface of said ceramic layer in the center side of the chuck.
4. An electrostatic chuck according to claim 1, wherein said planner electrode comprises a first electrode and a second electrode,
said first electrode comprising:
a disc portion arranged in the center of said ceramic layer; and

a first extending portion extending from a part of the disc portion toward the outer peripheral edge of said ceramic layer;

said second electrode comprising:

a second extending portion arranged opposite to said first extending portion over said disc portion of said first electrode and arranged in lacking portions of the plurality of said first C-shaped ring portions of said first electrode; and

a circular ring portion connected to an outer edge of said second extending portion so as to form the outermost peripheral portion of said second electrode.

5. An electrostatic chuck according to claim 4, wherein said first electrode further comprises

a plurality of first C-shaped ring portions at predetermined intervals so as to have different diameters extending in C shapes in both sides of said first extending portion surrounding said disc portion.

6. An electrostatic chuck according to claim 4, wherein said second electrode further comprises

a plurality of second C-shaped ring portions at predetermined intervals so as to have different diameters extending in C shapes in both sides of said second extending portion and being engaged with the plurality of said C-shaped ring portions of said first electrode.

7. A method for manufacturing an electrostatic chuck comprising the steps of:

preparing a first disc-shaped ceramic material compact having a half of a thickness of a completed ceramic layer;

forming an electrode on a surface of said first ceramic material compact;

preparing a second disc-shaped ceramic material compact having a half of a thickness of the completed ceramic layer and having a cooling gas channel on its surface within said electrode;

placing said second ceramic material compact on said first ceramic material compact so as to form a laminate and firing the entire laminate to complete a ceramic layer; and

bonding the completed ceramic layer to a metal base plate by means of an adhesive layer.

8. Method of claim 6, wherein said adhesive layer is flexible.